Claims

1.   A three-dimensional shape measurement apparatus comprising:

a first three-dimensional sensor having a projecting device for projecting a

5   light pattern on a target area, and a image capturing apparatus placed at a

first interval from the projecting device to capture an image of the target area

on which the light pattern is projected;

a second three-dimensional sensor having a projecting device for projecting a

light pattern on the target area, and a image capturing apparatus placed at a

10   second interval longer than the first interval from the projecting device to

capture an image of the target area on which the light pattern is projected;

three-dimensional information computing means for obtaining external

shape information on an object present in the target area based on the shift of

the pattern on the image acquired with the first three-dimensional sensor;

15   variation information computing means for obtaining variation information

on the object based on the shift of the pattern on the image acquired with the

second three-dimensional sensor; and

information composing means for composing the external shape information

and the variation information.

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2.   The three-dimensional shape measurement apparatus as recited in claim 1,

wherein the information composing means corrects the variation information

based on the external shape information.

25   3.   The three-dimensional shape measurement apparatus as recited in claim 1

or 2, wherein the information composing means performs the composition so as

to find out the movement of each point of the object.

4.   The three-dimensional shape measurement apparatus of any one as recited

30   in claims 1 through 3, further comprising information output means for

displaying the composed results of the information composing means.

5.   The three-dimensional shape measurement apparatus of any one as recited in claims 1 through 4, wherein the light pattern is an array of bright spots.

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6.   The three-dimensional shape measurement apparatus of any one as recited in claims 1 through 5, wherein the three-dimensional information computing means performs interpolation for points that lack the external shape information.